

REMARKS

Claims 1–10 and 12–20 are pending in this application. By this Amendment, claims 1–10 and 12–18 are amended, claim 20 is added and the Title is amended. The amendments to claims 2–10 and 12–18 merely correct minor informalities. Support for the amendments to claim 1 and support for new claim 20 can be found, for example, on page 3, lines 9–11, and page 4, lines 21–25. No new matter is added. Applicants respectfully request reconsideration and prompt allowance in view of at least the following remarks.

The Office Action rejects claims 1, 2, 7, 8, 10, 12, 17 and 18 under 35 U.S.C. §103(a) over U.S. Patent No. 5,848,080 (Dahm) in view of U.S. Patent No. 5,265,107 (Delfyett). Applicants respectfully traverse the rejection.

Initially, the Office Action alleges that a preamble is not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness. Claim 1 currently recites the "laser system generates femtosecond or picosecond pulses" in the body of the claim. The Office Action must accord this recitation patentable weight so that any art applied against the application must at least generate femtosecond or picosecond pulses.

Dahm discusses a short pulse-width that does not exceed 1.5 nanoseconds (Dahm at claims 1, 2 and 64). Although Dahm discusses pulse-widths of 1.5 nanoseconds, Dahm fails to discuss femtosecond or picosecond pulse widths. Because Dahm fails to discuss femtosecond or picosecond pulse widths, Dahm does not enable a laser system that generates femtosecond or picosecond pulses, as recited in claim 1. Because Dahm fails to enable the recitation in claim 1, Dahm cannot be relied on in an obviousness rejection because a conclusion of obviousness requires that the reference relied upon be enabling or put the public in possession of the claimed invention. MPEP §2145 page 2100-163; *In re Hoeksema*

399 F.2d 269, 274, 158 USPQ 596, 601 (CCPA 1968). Accordingly, the rejection of claim 1 is improper.

Additionally, the obviousness rejection is not supported with a clear and explicit articulation of the reason(s) why the claimed invention allegedly would have been obvious, including a reasonable rationale as to why prior art references would have been combined or modified. MPEP §§2141(III) and 2142, citing *KSR*. "[R]jections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *Id.*, quoting *KSR*, in turn quoting the Federal Circuit's *In re Kahn* decision with approval. Rather, the Office Action merely states the conclusion of obviousness, as discussed below.

The Office Action concedes that Dahm does not disclose a saturable absorber mirror but alleges that the disclosure of Delfyett cures this deficiency (Office Action at page 4). Importantly, a skilled artisan would understand that the field of high-repetition short-pulse lasers requires detailed designs and operation parameters, and arbitrary mixing of components from one design to another does not lead to operationally effective designs.

For example, Dahm discloses the use of a short or very short cavity that limits the pulse energy. According to Dahm, the diameter of the TEM₀₀ mode is usually limited to a few millimeters or less (Dahm at col. 5, lines 45-49). In addition, Dahm teaches that this does not advantageously use a large amount of the available gain in a laser rod that has a diameter of 4 mm (Dahm at col. 5, lines 45-49). The comparatively long gain medium of Dahm and small spot size leads to high non-linear effects. As discussed above, Dahm is silent regarding using a saturable absorber mirror and is also silent regarding mode-locking because Dahm uses a process that does not require these features. A skilled artisan would not start with Dahm to render obvious the claims of the current application.

Importantly, Applicants assert that the broad conclusion of obviousness stated in the Office Action of "Introduction of a saturable absorber mirror as taught by Delfyett would enhance the teachings of Dahm by facilitation of mode locking conditions" (Office Action at page 4) is, not only based on no articulated reasoning, but is also misguided as the Examiner's analysis or utilization of the prior art is erroneous. The disclosure of Dahm to a skilled artisan would not render the need to have mode-locking, because the discussed structure provides a high-repetition pulse laser without mode-locking. A skilled artisan with knowledge of both references would not have any rationale or motivation to introduce the saturable absorber of Delfyett into Dahm based on Dahm not requiring mode-locking. Simply including a feature of one laser system into another is not possible given the complexity of each individual system.

Based on the foregoing, claim 1 is patentable over Dahm in view of Delfyett. Claims 2, 7, 8, 10, 12, 17 and 18 are also patentable, at least in view of the patentability of claim 1, from which they depend, as well as for the additional features the claims recite. Applicants respectfully request withdrawal of the rejection.

The Office Action rejects claims 3 and 13 under 35 U.S.C. §103(a) over Dahm in view of Delfyett in further view of U.S. Patent Application Publication No. 2005/0152426 (Dell'Acqua); claims 4 and 14 under 35 U.S.C. §103(a) over Dahm in view of Delfyett in further view of U.S. Patent No. 3,675,154 (Duguay); claims 5 and 15 under 35 U.S.C. §103(a) over Dahm in view of Delfyett in further view of Applicants' Admitted Prior Art (AAPA); claims 6, 16 and 19 under 35 U.S.C. §103(a) over Dahm in view of Delfyett in further view of Applicants' Admitted Prior Art (AAPA); and claim 9 under 35 U.S.C. §103(a) over Dahm in view of Delfyett in further view of U.S. Patent No. 4,849,036 (Powell). Applicants respectfully traverse the rejections.

The rejections are premised upon the presumption that Dahm in view of Delfyett teach or suggest all of the features of claim 1. Because, as discussed above, Dahm in view of Delfyett do not teach or suggest all of the features of claim 1, the rejection is improper. Applicants respectfully request withdrawal of the rejection.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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